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BLACK CREEK, BAYERS CREEK, 1963
MILLERS CREEK, BAKER CREEK 1964
USSHERS CREEK, FRENCHMAN CREEK

THE
ONTARIO WATER RESOURCES
COMMISSION

WATER QUALITY SURVEY

of

- BLACK CREEK
- BAYERS CREEK
- MILLER CREEK
- BAKER CREEK
- USSHERS CREEK
- FRENCHMAN CREEK

1963 - 1964

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ONTARIO WATER RESOURCES COMMISSION

REPORT ON A

WATER QUALITY SURVEY

OF THE

BLACK CREEK
BAYERS CREEK
MILLER CREEK
BAKER CREEK
USSHERS CREEK
FRENCHMAN CREEK

DIVISION OF SANITARY ENGINEERING

May 1963

August, September, October 1964

WATER QUALITY SURVEY

Samples were collected from established sampling points on Black Creek, Bayers Creek, Miller Creek, Baker Creek, Usshers Creek and Frenchman Creek. These creeks drain the south-eastern portion of the County of Welland and empty into the Niagara River.

All of the samples referred to in the report were collected during May of 1963 and the summer and fall of 1964.

The laboratory results of the samples are included in the report, together with an explanation of the significance of the results, which is attached to the end of the report.

The survey was confined to the sampling of the streams to determine their sanitary quality and stream usage.

WATERSHED

The creeks originate in swampy areas in the townships of Humberstone, Bertie and Willoughby and empty into the Niagara River between the Village of Chippawa and the Town of Fort Erie.

Black Creek

Black Creek is the only creek of consequence and it drains an area of 40.4 square miles. It rises from marshland in the Township of Humberstone, flows for its greatest distance through the Township of Bertie, and empties into the Niagara River in the Township of Willoughby.

The upper reaches of the stream are mainly ditch drains with intermittent flows. The average gradient of the main channel is 4.2 feet per mile, with a minimum of 0.4 feet in 4.6 miles between Stevensville and the Niagara River. With this small gradient and low flow, the water is turbid most of the year. The only tributary of consequence is Beaver Creek which drains the south-easterly section of the Black Creek Watershed.

Usshers, Bayers, Baker, Frenchman and Miller Creeks

These creeks have small drainage areas of less than 10 square miles each, and serve mainly as local drainage ditches.

Frenchman Creek and Miller Creek are located wholly in the Township of Bertie, and Usshers, Baker and Bayers creeks are, for the most part, located in the Township of Willoughby.

TOPOGRAPHY

The land surface comprising the watersheds is predominantly a clay plain. The nearly level plain is at an elevation of approximately 600 feet above sea level and slopes gently in an easterly direction to the Niagara River.

STREAM FLOWS

No stream gauges are established on these creeks to ascertain actual stream flows. Information available and observation of the stream conditions in the different seasons of the year

indicate maximum flows in the spring, dropping quickly to low or negligible flows in the late summer. At the time of sampling there was no flow in the headwaters of Black Creek and little or no flow in the other creeks.

STREAM USES

For the most part the creeks are used to drain agricultural land and marsh areas, and for cattle watering.

A private water supply is obtained from Black Creek to serve the Community of Douglastown, Township of Willoughby.

A water pollution survey carried out by the Commission in 1962 and the Water Resources Survey of the County of Welland prepared in 1964, indicate that Black Creek is used to receive effluent from illegal connections to storm drains in the communities of Stevensville, Ridgeway and Douglastown.

DISCUSSION OF SAMPLE RESULTS

In the designation of sampling points, the figures (e.g. BL-1.6) refer to the mileage from the mouth of the stream.

BLACK CREEK

SAMPLING PT. NO.	LOCATION	DATE	5-DAY BOD (PPM)	SOLIDS (PPM)			TURBIDITY IN SILICA UNITS	M.F. COLIFORM COUNT PER 100 ML.
				TOTAL	SUSP.	DISS.		
BL - 0.1	BLACK CREEK AT NIAGARA PARKWAY	13/5/63	3.6	542	-	-	84	7,000
		4/8/64	1.3	232	19	213	-	140
		19/8/64	0.7	190	9	181	-	240
		1/9/64	2.0	328	30	298	-	260
BLX - 0.2	SIDE CREEK AT BLACK CREEK RD.	19/8/64	1.1	340	32	308	-	1,100
		13/5/63	4.5	334	-	-	29	10,600
BL - 1.6	BLACK CREEK AT Q.E.W.	19/8/64	2.8	484	58	426	-	500
		13/5/63	3.6	578	-	-	110	4,900
BLB - 2.5	BEAVER CREEK AT FIRST SIDE ROAD UPSTREAM OF JUNCTION WITH BLACK CREEK	19/8/64	NO FLOW AT TIME OF SURVEY					
		13/5/63	1.4	698	-	-	2.3	2,700
BLB - 4.3	BEAVER CREEK AT BOWEN ROAD	19/8/64	NO FLOW AT TIME OF SURVEY					
		13/5/63	1.4	570	-	-	2.8	3,800
BLB - 7.3	BEAVER CREEK AT HWY. NO. 3	19/8/64	NO FLOW AT TIME OF SURVEY					
		13/5/63	1.2	1166	-	-	1.0	7,600
BL - 4.0	BLACK CREEK DOWNSTREAM FROM JUNCTION WITH SOUTH BRANCH	19/8/64	2.7	442	40	402	-	2,500
		13/5/63	2.0	518	-	-	74	7,700
BLS - 4.8	SOUTH BRANCH AT BOWEN ROAD	19/8/64	NO FLOW AT TIME OF SURVEY					
		13/5/63	2.6	1342	-	-	29	5,000
BLS - 8.6	SOUTH BRANCH AT HWY. NO. 3	19/8/64	NO FLOW AT TIME OF SURVEY					
		13/5/63	3.2	300	-	-	48	4,100
BL - 4.1	BLACK CREEK JUST UPSTREAM FROM JUNCTION WITH SOUTH BRANCH	19/8/64	2.6	476	60	416	-	2,400
		13/5/63	1.0	480	-	-	62	110,000
BL - 5.5	BLACK CREEK AT FIRST CONC. ROAD UPSTREAM FROM STEVENSVILLE	19/8/64	1.2	496	86	410	-	6,000
		13/5/63	5.2	430	-	-	42	310
BL - 7.6	BLACK CREEK AT ROAD BETWEEN CONC. RD. 14 AND CONC. RD. 15, BERTIE TOWNSHIP	19/8/64	3.1	1220	86	1134	-	63,000
		13/5/63	2.8	676	-	-	31	2,700

The sanitary quality of the stream is marred by the excessive suspended solids in the water. This could be caused by the run-off from the clay fields and the low flow of the stream. The high coliform

counts found in the samples could be attributed to farm drainage and contaminated wastewater discharges from the storm sewers in Stevensville.

USSHERS CREEK

SAMPLING PT. No.	LOCATION	DATE	5-DAY BOD (PPM)	SOLIDS (PPM)			TURBIDITY IN SILICA UNITS	M.F. COLIFORM COUNT PER 100 ML.
				TOTAL	SUSP.	DISS.		
US - 0.1	USSHERS CREEK OF NIAGARA PARKWAY	21/7/64	1.7	294	-	-	6.5	176
		1/9/64	2.3	168	9	159	-	500
		29/10/64	7.2	356	-	-	34	108,000

The high BOD and coliform count may be attributed to an almost negligible flow at the time of collecting the November 29th. sample.

BAKER CREEK

SAMPLING PT. No.	LOCATION	DATE	5-DAY BOD (PPM)	SOLIDS (PPM)			TURBIDITY IN SILICA UNITS	M.F. COLIFORM COUNT PER 100 ML.
				TOTAL	SUSP.	DISS.		
BK - 0.1	BAKER CREEK AT NIAGARA PARKWAY	4/8/64	1.5	236	4	232	-	2,900
		1/9/64	1.6	262	9	253	-	180
		29/10/64	4.0	376	-	-	56	600

The increase in the BOD and the high turbidity in the sample collected on the 29th of October could be attributed to the low flow in the stream.

FRENCHMAN CREEK

SAMPLING PT. No.	LOCATION	DATE	5-DAY BOD (PPM)	SOLIDS (PPM)			TURBIDITY IN SILICA UNITS	M.F. COLIFORM COUNT PER 100 ML.
				TOTAL	SUSP.	DISS.		
F - 0.1	FRENCHMAN CREEK AT NIAGARA PARKWAY	4/8/64	1.5	910	22	888	-	80
		18/8/64	0.9	350	18	332	-	100
		1/9/64	1.3	1038	27	1011	-	18
		29/10/64	2.0	844	-	-	29	4,100
F - 1.8	FRENCHMAN CR. AT ROAD SOUTH OF GOLFCOURSE	18/8/64	1.1	840	26	814	-	490
F - 2.5	FRENCHMAN CR. AT CONC. RD. No. 2. BERTIE TOWNSHIP	18/8/64	2.4	488	4	484	-	22,000

The coliform counts greater than the recommended maximum of 2,400 organisms could be attributed to the low flow at the time of sampling.

MILLER CREEK

SAMPLING PT. NO.	LOCATION	DATE	5-DAY BOD (PPM)	SOLIDS (PPM)			TURBIDITY IN SILICA UNITS	M.F. COLIFORM COUNT PER 100 ML
				TOTAL	SUSP.	DISS.		
M - 0.1	MILLER CREEK AT NIAGARA PARKWAY	4/8/64	1.3	264	11	252	-	120
		19/8/64	1.0	206	9	197	-	-
		1/9/64	1.3	278	15	263	-	1000
		29/10/64	2.0	232	-	-	20	1600
M - 0.5	MILLER CREEK AT ROAD JUNCTION 1/2 MILE UP- STREAM OF STREAM MOUTH	19/8/64	0.6	516	42	474	-	800
M - 1.6	MILLER CREEK AT ROAD BE- TWEEN CONC. 4 & 5 BERTIE TWP.	19/8/64	1.6	500	22	478	-	600

The laboratory results indicate that the sanitary quality of this stream was satisfactory at the time of sampling.

BAYERS CREEK

At the times of sampling there was not sufficient flow in the stream to warrant samples being collected.

SUMMARY

Samples were collected from established points in the streams which drain the south-eastern section of the County of Welland.

The laboratory results of these samples indicate that streams are high in suspended solids, which may be attributed to the

run-off from the clay plain.

The sanitary quality of the water appeared to be affected by periods of reduced flows coupled with farm drainage. The one exception is the Hamlet of Stevensville in the Township of Bertie, which discharges raw or partially treated domestic wastes to Black Creek via its storm drains. A previous water pollution survey carried out by the Commission, in the Township of Bertie, recommended that the municipality institute a pollution abatement programme where necessary.

Prepared by:
R. G. Quance.

All of which is respectfully submitted,

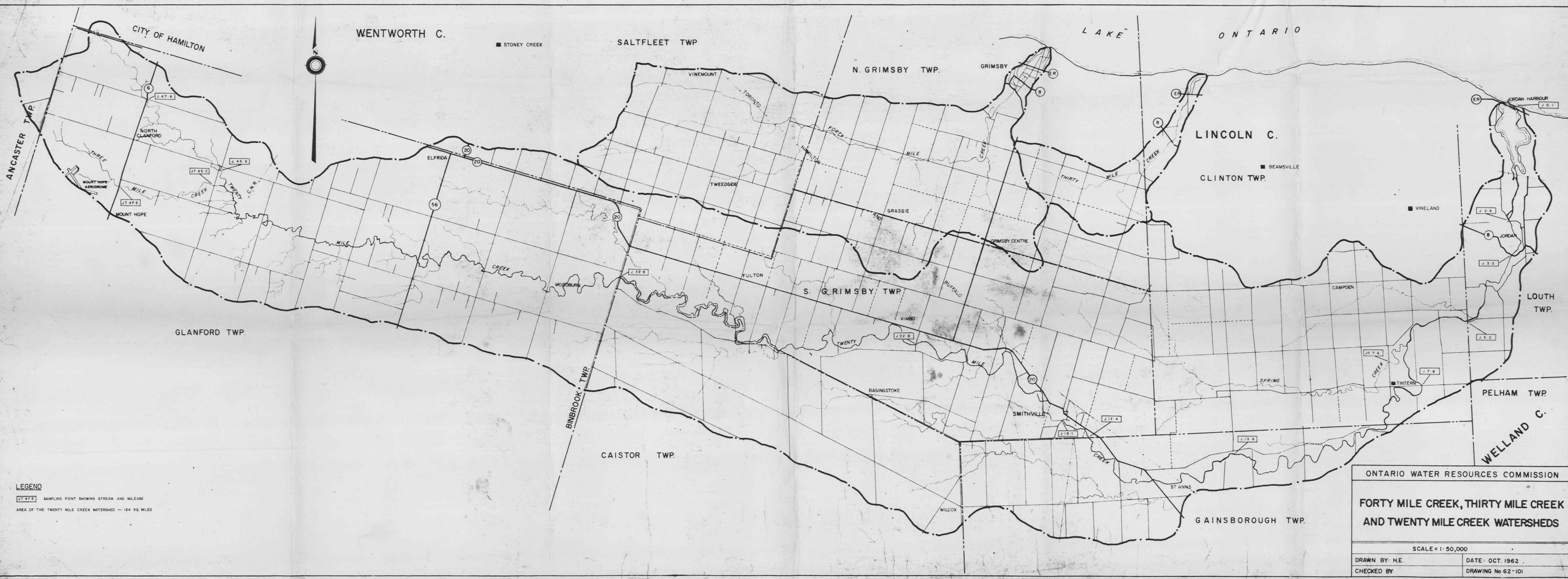
District Engineer: _____


A. B. Redekopp, P. Eng.

Approved by: _____

K. H. Sharpe, Director.

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LEGEND

■ J.T. 47.5 SAMPLING POINT SHOWING STREAM AND MILEAGE

AREA OF THE TWENTY MILE CREEK WATERSHED — 124 SQ. MILES

ONTARIO WATER RESOURCES COMMISSION

**FORTY MILE CREEK, THIRTY MILE CREEK
AND TWENTY MILE CREEK WATERSHEDS**

SCALE = 1:50,000

DRAWN BY: H.E.	DATE: OCT. 1962
CHECKED BY:	DRAWING No 62-101